

FORM PTO 1449 (modified)

ATTY DOCKET NO.  
2003\_1117SERIAL NO.  
10/635,468U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICELIST OF REFERENCES CITED BY APPLICANT(S)  
(Use several sheets if necessary)

Date Submitted to PTO: July 21, 2004

APPLICANT  
Mitsuaki OSHIMA et al.FILING DATE  
August 7, 2003GROUP  
2634

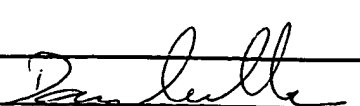
## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	AA						
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
DH	AJ	2-154583	6-13-90	Japan	—	—	abstract
	AK						
	AL						
	AM						
	AN						

## OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

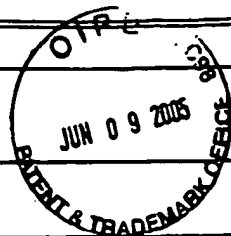
DH	AO	Shigeki MORIYAMA et al., "Delay Propagation Characteristics at VHF and UHF bands in Urban Area", 1991 Spring National Convention Record, The Institute of Electronics, Information and Communication Engineers, Part 2, p. 406, March 15, 1991
DH	AP	Yasuhiro ITO et al., "Adaptive Weighted Code Division Multiplexing (AW-CDM) Transmission System for Terrestrial Digital Television Broadcasting", ITE Technical Report Vol. 17, No. 13, pp 27-32, February 25, 1993
	AQ	
EXAMINER		
	DATE CONSIDERED	12/19/05

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include cop. this form with next communication to applicant.

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Date Submitted to PTO: June 9, 2005

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2631+

## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
DH	AA	5,311,550	5-10-94	Fouche et al.	—	—	—
	AB	4,630,287	12-16-86	Armstrong	—	—	—
	AC	4,271,527	6-2-81	Armstrong	—	—	—
	AD	5,050,188	9-17-91	Dirr	—	—	—
	AE	5,398,073	3-14-95	Wei	—	—	—
	AF	5,452,015	9-19-95	Hulyalkar	—	—	—
	AG	5,565,932	10-15-96	Citta et al.	—	—	—
	AH	5,481,412	1-2-96	Bannai et al.	—	—	—
DH	AI	3,909,721	9-30-75	Bussgang et al.	—	—	—

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
DH	AJ	365431	4-25-90	EP	—	—	X
	AK	485105	5-13-92	EP	—	—	X
	AL	92/14343	8-20-92	WO	—	—	X
	AM	89/08366	9-8-89	WO	—	—	X
DH	AN	31193	7-1-81	EP	—	—	X

## OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

DH	AO	Shinji Matsumoto et al., "200 Mb/s 16 QAM Digital Radio-Relay System Operating in 4 and 5 GHz Bands", Japan Telecommunications Review, January 1982, vol. 24, no. 1, pages 65-73.
DH	AP	M. Pecot et al., "Compatible Coding of Television Images, Part 2. Compatible System", Signal Processing Image Communication, October 2, 1990, no. 3, pages 259-268.
DH	AQ	Mitsuaki Oshima, "Constellation-Code Division Multiplex for Digital HDTV", IEEE, 1992, pages 1086-1092.

EXAMINER

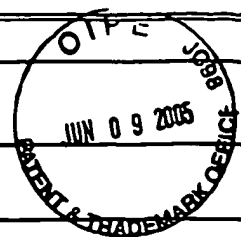
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## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
DLH	AA	4,227,152	10-7-80	Godard et al.	—	—	—
	AB	4,525,846	6-25-85	Bremer et al.	—	—	—
	AC	4,751,478	6-14-88	Yoshida	—	—	—
	AD	4,891,806	1-2-90	Farias et al.	—	—	—
	AE	4,903,125	2-20-90	Parker	—	—	—
	AF	4,937,844	6-26-90	Kao	—	—	—
	AG	5,164,963	11-17-92	Lawrence et al.	—	—	—
	AH	5,555,275	9-1996	Oshima	—	—	—
DLH	AI	5,565,926	10-15-96	Bryan et al.	—	—	—

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
DLH	AJ	311188	4-12-89	EP	—	—	X
	AK	329158	8-23-89	EP	—	—	X
	AL	64-5135	1-10-89	JP	—	—	X
	AM	63-28145	2-5-88	JP	—	—	X
DLH	AN	62-133842	6-17-87	JP	—	—	X

## OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

DLH	AO	Tricia Hill et al., "A Performance Study of NLA 64-State QAM", IEEE Transactions on Communications, vol. COM-31, June 1983, no. 6, pages 821-826.
DLH	AP	Hideki Ishio et al., "A Proposal of a Carrier Digital Transmission System Using Multi-Level APSK", pages 1-20.
DLH	AQ	Shanmugam, "Digital and Analog Communication Systems" 1979, p. 272.

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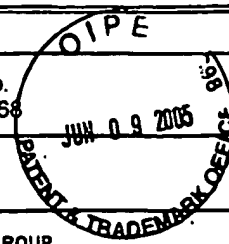
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## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
DH	AA	5,105,442	4-14-92	Wei	—	—	—
	AB	4,048,572	9-13-77	Dogliotti et al.	—	—	—
	AC	5,282,019	1-25-94	Basile et al.	—	—	—
	AD	5,311,547	5-10-94	Wei	—	—	—
	AE	5,267,021	11-30-93	Ramchandran et al.	—	—	—
	AF	5,038,219	8-6-91	Yamashita et al.	—	—	—
	AG	5,087,975	2-11-92	Citta et al.	—	—	—
	AH	5,086,340	2-4-92	Citta et al.	—	—	—
DH	AI	5,243,629	9-7-93	Wei	—	—	—

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
DH	AJ	53-137657	12-1-78	JP	—	—	X
	AK	282298	9-14-88	Europe	—	—	X
	AL	392538	10-17-90	Europe	—	—	X
	AM	490552	6-17-92	Europe	—	—	X
DH	AN	506400	9-30-92	Europe	—	—	X

## OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

DH	AO	Khaled Fazel et al., Combined multilevel coding and multiresolution modulation, February 8, 1993, Pages 1081-1085
DH	AP	P. Hoeher et al., Performance of an RCPC-Coded OFDM-based Digital Audio Broadcasting (DAB) System, IEEE Global Telecommunications Conference "Globecom '91", December 2-5, 1991, Vol. 1 of 3, Pages 2.1.1 - 2.1.7
DH	AQ	K. M. Uz et al., Combined multiresolution source coding and modulation for digital broadcast of HDTV*, 1992, Pages 283-292

EXAMINER

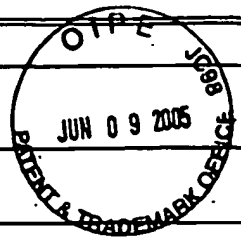
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EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
DH	AA	5,142,353	8-25-92	Kageyama et al.	—	—	—
	AB	5,197,061	3-23-93	Halbert-Lassalle et al.	—	—	—
	AC	5,291,289	3-1-94	Hulyalkar et al.	—	—	—
	AD	5,166,924	11-24-92	Moose	—	—	—
	AE	4,940,954	7-10-90	Aubert et al.	—	—	—
	AF	5,128,758	7-7-92	Azadegan et al.	—	—	—
	AG	5,038,402	8-6-91	Robbins	—	—	—
DH	AH	5,638,112	6-10-97	Bestler et al.	—	—	—

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
DH	AI	448492	9-25-91	Europe	—	—	X
	AJ	485108	5-13-92	Europe	—	—	X
	AK	525641	2-3-93	Europe	—	—	X
	AL	540231	5-5-93	Europe	—	—	X
DH	AM	531046	3-10-93	Europe	—	—	X

## OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

DH	AN	K. M. Uz et al., Multiresolution Source and Channel Coding for Digital Broadcast of HDTV, 1992, Pages 61-69.
DH	AO	Nambi Seshadri et al., Multi-Level Block Coded Modulations with Unequal Error Protection for the Rayleigh Fading Channel, Vol. 4, No. 3, May-June 1993, Pages 325-334.
DH	AP	William F. Schreiber, Spread-Spectrum Television Broadcasting, SMPTE Journal, August 1992, Pages 538-549.

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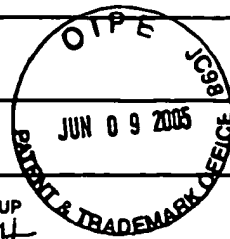
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## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
DH	AA	5,063,445	11-5-91	Nishizawa et al.	_____	_____	_____
	AB	5,819,000	10-6-98	Oshima	_____	_____	_____
	AC	5,999,569	12-7-99	Oshima	_____	_____	_____
DH	AD	5,892,879	4-6-99	Oshima	_____	_____	_____

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
DH	AE	7-99522	4-11-95	Japan	_____	_____	abstract
	AF	7-79415	3-20-95	Japan	_____	_____	abstract
	AG	5-75568	3-26-93	Japan	_____	_____	abstract
	AH	86/07223	12-4-86	WO	_____	_____	X
	AI	2 187 611	9-9-87	Great Britain	_____	_____	X
	AJ	85/04541	10-10-85	WO	_____	_____	X
	AK	4-196822	7-16-92	Japan	_____	_____	abstract
	AL	2-166979	6-27-90	Japan	_____	_____	abstract
	AM	64-74836	3-20-89	Japan	_____	_____	abstract
DH	AN	53-108215	9-20-78	Japan	_____	_____	abstract

## OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

DH	AO	Martin Vetterli et al., Multiresolution Coding Techniques for Digital Television: A Review, Multidimensional Systems and Signal Processing, Volume 3, May 1992, Pages 161-187.
DH	AP	Ezio Biglieri et al., Introduction to Trellis-Coded Modulation with Applications, April 6, 1992, Pages 173-207.
DH	AQ	English Language Abstract of European Patent No. 93 30 7575

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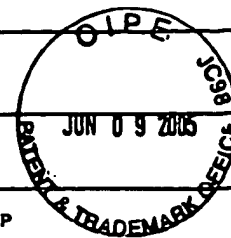
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## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
DH	AA	4,636,876	1-13-87	Schwartz	—	—	—
	AB	4,855,692	8-8-89	Kennard et al.	—	—	—
	AC	4,873,701	10-10-89	Tretter	—	—	—
	AD	4,958,360	9-18-90	Sari	—	—	—
	AE	5,115,453	5-19-92	Calderbank et al.	—	—	—
	AF	5,168,509	12-1-92	Nakamura et al.	—	—	—
	AG	6,049,651	4-11-00	Oshima	—	—	—
	AH	6,256,357	7-3-01	Oshima	—	—	—
DH	AI	5,214,656	5-1993	Chung et al.	—	—	—

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
DH	AJ	122805	10-24-84	EP	—	—	X
	AK	63-180280	7-25-88	JP	—	—	abstract
	AL	64-68144	3-14-89	Japan	—	—	abstract
	AM	5-218978	8-27-93	Japan	—	—	X
DH	AN	3-69295	3-25-91	Japan	—	—	X

## OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

DH	AO	Kazuhiko Nitadori, Synthesis of Multichannel Orthogonal VSB Signals by Quadrature Method, 1976 International Conference on Communications, June 14-16, 1976, Volume 1, Pages 3-25 - 3-29.
DH	AP	Thomas M. Cover, Broadcast Channels, IEEE Transactions on Information Theory, January 1972, Pages 2-14
DH	AQ	"Optimum Weighted PCM for Speech Signals", Sundberg, IEEE Transactions on Communications, Volume COM-26, No. 6, June 1978, Pages 872-881.

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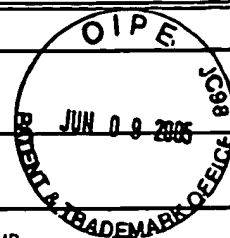
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## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
DA	AA	5,170,413	12-8-92	Hess et al.	—	—	—

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
DA	AB	57-39629	3-4-82	Japan	—	—	abstract
	AC	58-161547	9-26-83	Japan	—	—	abstract
	AD	63-180222	7-25-88	Japan	—	—	abstract
	AE	92/22162	12-10-92	WO	—	—	X
	AF	2-94814	4-5-90	Japan	—	—	abstract
	AG	61-70861	4-11-86	Japan	—	—	abstract
	AH	2-218279	8-30-90	Japan	—	—	abstract
	AI	2,095,435	5-10-92	Canada	—	—	X
	AJ	91/20137	12-26-91	WO	—	—	X
	AK	2-141049	5-30-90	Japan	—	—	X
	AL	2-195732	8-2-90	Japan	—	—	abstract
	AM	5-167633	7-2-93	Japan	—	—	abstract
	AN	2-260726	10-23-90	Japan	—	—	X
DA	AO	58-161427	9-26-83	Japan	—	—	abstract
	AP				—	—	

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	AQ	
	AR	

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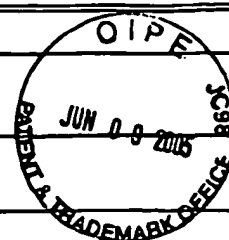


## INFORMATION DISCLOSURE STATEMENT

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DH	AA	3,824,548	7-16-74	Sullivan et al.	—	—	—
	AB	3,959,726	5-25-76	Hinoshita et al.	—	—	—
	AC	4,303,939	12-1-81	Stephens et al.	—	—	—
	AD	4,303,941	12-1-81	Marti et al.	—	—	—
	AE	4,309,726	1-5-82	Tanaka et al.	—	—	—
	AF	4,535,352	8-85	Haskell	—	—	—
	AG	4,564,858	1-14-86	Resch	—	—	—
	AH	4,581,639	4-8-86	Judge	—	—	—
	AI	4,769,819	9-6-88	Matsutani et al.	—	—	—
	AJ	4,794,447	12-27-88	Tsinberg	—	—	—
	AK	4,800,426	1-24-89	Glenn	—	—	—
	AL	4,817,192	3-28-89	Phillips et al.	—	—	—
	AM	5,007,088	4-9-91	Ooi et al.	—	—	—
	AN	5,029,003	7-91	Jonnalagadda	—	—	—
DH	AO	5,134,464	7-28-92	Basile et al.	—	—	—

## FOREIGN PATENT DOCUMENTS

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	AP						

## OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

DH	AQ	Masafumi SAITO et al., "Bit Error Rate Characteristics of OFDM in Multipath Environment", 1991					
DH	AR	Ryutaro OHMOTO et al., "π/4-shift QPSK Subcarrier Transmission", 1991					

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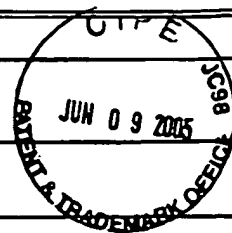
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## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
DH	AA	5,181,112	1-19-93	Citta et al.	—	—	—
	AB	5,377,051	12-27-94	Lane et al.	—	—	—
	AC	5,400,084	3-21-95	Scarpa	—	—	—
	AD	5,576,902	11-19-96	Lane et al.	—	—	—
	AE	5,218,622	6-8-93	Fazel et al.	—	—	—
	AF	5,561,468	10-1-96	Bryan et al.	—	—	—
	AG	5,598,220	1-97	Citta et al.	—	—	—
DH	AH	5,802,241	9-1-98	Oshima	—	—	—
	AI						

## FOREIGN PATENT DOCUMENTS

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DH	AJ	3-48587	3-1-91	Japan	—	—	abstract
	AK						
	AL						
	AM						
	AN						

## OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

DH	AO	J. A. C. Bingham, "Multicarrier Modulation for Data Transmission: An Idea Whose Time Has Come", IEEE Communications Magazine, Vol. 28, May 1990, pages 5-8 and 11-14
DH	AP	B. Hirosaki, "An Orthogonally Multiplexed QAM System Using the Discrete Fourier Transform", IEEE Transactions on Communications, Vol. Com-29, No. 7, July 1981, pages 982-989
DH	AQ	L. J. Cimini, Jr., "Analysis and Simulation of a Digital Mobile Channel Using Orthogonal Frequency Division Multiplexing", IEEE Transactions on Communications, Vol. Com-33, No. 7, July 1985, pages 665-675 and Annex

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